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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,385	01/05/2006	Jun Li	PU030023	3002
24498 7590 10/17/2007 JOSEPH J. LAKS, VICE PRESIDENT THOMSON LICENSING LLC PATENT OPERATIONS PO BOX 5312 PRINCETON, NJ 08543-5312			EXAMINER BRANDT, CHRISTOPHER M	
			ART UNIT 2617	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/563,385

Applicant(s)

LI ET AL.

Examiner

Christopher M. Brandt

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

This Action is in response to applicant's arguments / amendments filed on July 23, 2006.

**Claims 1-12** are still pending in the present application. **This Action is made FINAL.**

***Response to Arguments***

Applicant's arguments filed July 23, 2007 have been fully considered but they are not persuasive.

With regards to applicant's argument regarding that none of the cited references, either taken singly or in combination, teach or suggest all of the recited limitations of Claim 1, the examiner respectfully disagrees. Copley does disclose that the micro cell and the one macro cell are directly communicating as the examiner noted in the previous Office Action. The examiner used paragraph 25 to show applicants that a microwave link can be used between two network components. It is further stated in paragraph 25 as well as paragraphs 24, 26-36 (and in particular paragraph 28) that interface station 122 transmits the upstream information at the upstream coverage frequency to the base interface station 118. Therefore, Copley does disclose direct communication between micro and macro cells. The applicants have stated "macro cell" and "micro cell" do not even appear in paragraph 25. The examiner would first like to note that although the examiner cited paragraph 25, the document must be taken as a whole to fully understand Copley's concepts. Nonetheless, the examiner would like to point out in paragraph 25 that base station 120, which provides coverage to a cell is read as a "macro cell" since it is providing coverage to an entire cell of mobile stations. The interface stations 122 are considered to be "micro cells" since they provide a limited amount of coverage within the "macro cell" or

Art Unit: 2617

within the coverage of the base station 120. Therefore, Hunt and Copley disclose each and every limitation.

With regards to applicants argument that the combination of Hunt and Copley is improper because it would change the principle of operation of Hunt, the examiner respectfully disagrees. The examiner relied upon Copley to demonstrate that direct communication can occur between micro cells and macro cells. Therefore, using this feature of Copley would not change the principle operation of Hunt. With regards to applicant's argument regarding that Hunt does not disclose sending signaling information directly from the macro cell to the pico cell upon user connection to the pico cell, the examiner agrees. That is why the examiner relies upon Copley to demonstrate that direct communication can occur between micro cells and macro cells. The applicant's also argue that Hunt does not disclose signaling information but rather control data. The examiner notes that signaling information is very broad and control data can be considered signaling information since there is no limitation defining signaling information in the independent claim. However, paragraph 30 teaches that the macro cell may also instruct the chosen pico cell to vary transmission parameters. In addition, the claim does not disclose the specific channels that this signaling information is being transported on, therefore, Hunt and Copley disclose the claimed invention as currently written. With regards to applicants argument that Hunt does not disclose signaling information is communicated between one micro cell and the one macro cell via a third wireless channel in response to access of the micro cell by the mobile communication device, the examiner respectfully disagrees. The applicants noted that in paragraph 29 is not disclosing this signaling information prior to the mobile terminal accessing the pico cell. The examiner would like to draw applicant's attention to paragraphs 29 and 30,

where Hunt discloses that the MS can signal the identity of this cell to the macro cell's base station and when there is a data packet to be transmitted to the user, the macro cell routes the data to the identified pico cell and sends notification to the MS, **where the macro cell may also instruct the chosen pico cell to vary transmission parameters** (i.e. signaling information).

As a result, the argued features are written such that they read upon the cited references.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 1-6, 8-11** are rejected under 35 USC 103(a) as being unpatentable over **Hunt et al. (US PG PUB 2003/0013452 A1, Hunt)** in view of **Copley et al. (US PG PUB 2003/0003917 A1, hereinafter Copley)**.

Consider **claims 1**. Hunt clearly show and disclose a method for achieving cellular radio communication system, which comprises a plurality of pico cells 106 (figure 2) and an umbrella macro cell 102 (figure 2). The pico cell 102 is capable of voice telephony and data communications with a Mobile Station 110 (figure 2) using a sub-channel 212 (figure 2). In addition, the pico cells 106 pass data across a sub-channel 214 (figure 2) to a terminal 110 (figure 2) dedicated for higher data rates. Moreover, there is a communication channel between the secondary station and a primary station, which comprises control and data sub-channels for the respective transmission of control information and user data. This communication channel also provides a means for a data sub-channel between the secondary station and controlling primary station for the pico cell. The macro cell BS 104 has direct links (i.e. third wireless channel) to the pico cell base stations 108 included within the umbrella macro cell 102, and routes data to and from whichever is appropriate for current communications in a manner which is transparent to the network. In addition, when there is a data packet to be transmitted to the user (i.e. attempting to access the micro cell), the macro cell 102 routes the data to the identified pico cell 106. Moreover, the macro cell BS 104 may also instruct the chosen pico cell BS 108 to vary transmission parameters (such as data rate, transmission power) to modify the quality of the chosen link. In addition, Hunt discloses that the macro cell may also instruct the chosen pico cell

Art Unit: 2617

to vary transmission parameters (i.e. signaling information) (abstract, paragraphs 4-5, 10, 23, 28-30, read as method for achieving wireless communications in a network having at least one macro cell for communicating both voice and data with a mobile communications device across a first wireless link and, at least one micro cell, with a smaller coverage area and higher capacity per user than the macro cell, for communicating data with the mobile communications device across a second wireless communication link, the method comprising the steps of: communicating signaling information between the one micro cell and the one macro cell via a third wireless channel in response to access of the micro cell by the mobile communications device; and controlling the operation of the micro cell responsive to the signaling information).

Hunt discloses the claimed invention except he fails to explicitly disclose that the micro cell and the one macro cell are directly communicating.

However, Copley discloses that the micro cell and the one macro cell are directly communicating (paragraph 25, read as the base interface station 118 is connected to the cellular base station 102 through a coaxial cable. Communication and control signals, however, can be transmitted between the two units (102, 118) using a cable, radio frequency link, microwave link or any other type of wired or wireless communication channel. Hunt also discloses that interface station 122 transmits the upstream information at the upstream coverage frequency to the base interface station 118. Therefore, Copley does disclose direct communication between micro and macro cells. The interface stations 122 are considered to be "micro cells" since they provide a limited amount of coverage within the "macro cell" or within the coverage of the base station 120).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Copley into the invention of Hunt in order to implement a simulcast communication system with interface stations which is integrated with an existing cellular infrastructure and the base interface station is connected to an existing cellular base station (paragraph 25).

Consider **claim 6**. Hunt clearly show and disclose a system for achieving cellular radio communication system, which comprises a plurality of pico cells 106 (figure 2) and an umbrella macro cell 102 (figure 2). The pico cell 102 is capable of voice telephony and data communications with a Mobile Station 110 (figure 2) using a sub-channel 212 (figure 2). In addition, the pico cells 106 pass data across a sub-channel 214 (figure 2) to a terminal 110 (figure 2) dedicated for higher data rates. There is a BS 104 (figure 2, read as control element), which controls a macro cell 102. Moreover, there is a communication channel between the secondary station and a primary station, which comprises control and data sub-channels for the respective transmission of control information and user data. This communication channel also provides a means for a data sub-channel between the secondary station and controlling primary station for the pico cell. The macro cell BS 104 has direct links (i.e. third wireless channel) to the pico cell base stations 108 included within the umbrella macro cell 102, and routes data to and from whichever is appropriate for current communications in a manner which is transparent to the network. In addition, when there is a data packet to be transmitted to the user (i.e. attempting to access the micro cell), the macro cell 102 routes the data to the identified pico cell 106. Moreover, the macro cell BS 104 may also instruct the chosen pico cell BS 108 to vary transmission parameters (such as data rate, transmission power) to modify the quality of the



chosen link. In addition, Hunt discloses that the macro cell may also instruct the chosen pico cell to vary transmission parameters (i.e. signaling information) (abstract, paragraphs 4-5, 10, 23, 28-30, read as a wireless communications system, comprising: at least one macro cell for communicating both voice and data with a mobile communications device across a first wireless link at least one micro cell having a smaller coverage and higher capacity per user than the macro cell for communicating data with the mobile communications device across a second wireless communication link; a control element for controlling at least the operation of the macro cell; a third wireless channel for communicating signaling information between the one micro cell and the one macro cell in response to access of the micro cell by the mobile communications device to enable the controller to also control the operation of the macro cell).

Hunt discloses the claimed invention except he fails to explicitly disclose that the micro cell and the one macro cell are directly communicating.

However, Copley discloses that the micro cell and the one macro cell are directly communicating (paragraph 25, read as the base interface station 118 is connected to the cellular base station 102 through a coaxial cable. Communication and control signals, however, can be transmitted between the two units (102, 118) using a cable, radio frequency link, microwave link or any other type of wired or wireless communication channel. Hunt also discloses that interface station 122 transmits the upstream information at the upstream coverage frequency to the base interface station 118. Therefore, Copley does disclose direct communication between micro and macro cells. The interface stations 122 are considered to be “micro cells” since they provide a limited amount of coverage within the “macro cell” or within the coverage of the base station 120).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Copley into the invention of Hunt in order to implement a simulcast communication system with interface stations which is integrated with an existing cellular infrastructure and the base interface station is connected to an existing cellular base station (paragraph 25).

Consider **claim 2 and as applied to claim 1**. Hunt teaches the method wherein step of controlling the micro cell includes the step of managing access to the micro cell by the mobile communications device (figure 2, paragraph 25, 29, 30).

Consider **claim 3 and as applied to claim 1**. Hunt teaches the method wherein the step of communicating signaling information via the third wireless channel includes the step communicating signaling information from each mobile communications device separately (figure 2, paragraphs 23, 28-30).

Consider **claim 4 and as applied to claim 1**. Hunt teaches the method wherein the step of communicating signaling information via the third wireless channel includes the step of encapsulating signaling information from a plurality of mobile communication devices in a common packet (figure 2, paragraph 23, 28-30).

Consider **claim 5 and as applied to claim 1**. Hunt teaches the method further comprising the step of assigning to the mobile communication device codes and power settings to enable the mobile communication device to communicate with macro cell and micro cell simultaneously (figure 2, paragraphs 22-23 and 26).

Consider **claim 8 and as applied to claim 6**. Hunt teaches the system wherein the control element manages access to the micro cell by the mobile communications device (figure 2, paragraphs 25, 29, 30).

Consider **claim 9 and as applied to claim 6**. Hunt teaches the system wherein each micro cells separately communicates signaling information from each mobile communication device across the third wireless channel (figure 2, paragraphs 23, 28-30).

Consider **claim 10 and as applied to claim 6**. Hunt teaches the system wherein the signaling information of each of a plurality of micro cells is encapsulated into a common packet for communication across the third wireless communication channel (figure 2, paragraphs 23, 28-30).

Consider **claim 11 and as applied to claim 6**. Hunt teaches the system wherein the control element assigns to the mobile communication device codes and power settings to enable the mobile communication device to communicate with macro cell and micro cell simultaneously (figure 2, paragraphs 22-23, 26).

**Claim 7** is rejected under 35 USC 103(a) as being unpatentable over **Hunt et al. (US PG PUB 2003/0013452 A1)** in view of **Copley et al. (US PG PUB 2003/0003917 A1)** and further in view of **Westerberg (US Patent 6,058,302)**.

Consider **claim 7 and as applied to claim 6**. Hunt clearly show and disclose the claimed invention except wherein the control element comprises a Serving General Packet Radio Service Node (SGSN).

However, Westerberg teaches a system where the public (GPRS) network 100 (figure 2) includes a mobile services switching center/serving GPRS support node (MSC/SGSN) 102

Art Unit: 2617

(figure 2), which controls calls to and from other telephony and data communications systems (column 4 lines 27-47, read as the system wherein the control element comprises a Serving General Packet Radio Service Node (SGSN)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Westerberg into the systems of Hunt and Copley in order to provide stability during high load in large networks.

**Claim 12** is rejected under 35 USC 103(a) as being unpatentable over **Hunt et al. (US PG PUB 2003/0013452 A1)** in view of **Copley et al. (US PG PUB 2003/0003917 A1)**, in view of **Westerberg (US Patent 6,058302)** and further in view of **Horneman et al. (US Patent 6,959,048 A1)**.

Consider **claim 12** and as applied to **claim 7**. Hunt and Westerberg teach the claimed invention except wherein the control element further comprises: a Gateway General Packet Radio Service Serving Node (GGSN); and an Internet Protocol tunnel for linking the GGSN to an Internet Protocol gateway.

However, Horneman (hereinafter Horneman) clearly show and disclose a gateway node (GGSN = Gateway GPRS Support Node) 144 (figure 1B). This gateway node 144 connects to the packet transmission network 142 (figure 1B) and a public packet transmission network 146 (figure 1B). In addition, an Internet protocol can be used at the interface (column 5 line 62 – column 6 line 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Horneman into the systems of Hunt,

Art Unit: 2617

Copley, and Westerberg in order to optimize "bursty" data services such as wireless Internet/intranet and multimedia services.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Brandt whose telephone number is (571) 270-1098. The examiner can normally be reached on 7:30a.m. to 5p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.



Christopher M. Brandt

C.M.B./cmb

October 11, 2007



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